

## CLAIMS

1. A method for sterilizing or disinfecting a surface, which comprises:

- 5       a) forming an electrostatically-charged aerosol of a disinfecting solution;
- b) applying said aerosol onto said surface; and
- c) allowing said aerosol to remain in contact with said surface for a time sufficient to achieve the desired
- 10       degree of sterilization or disinfection.

2. The method of claim 1, wherein the aerosol comprises droplets having diameters in the range of from about 10 microns to about 80 microns.

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3. The method of claim 2, wherein the droplets have a charge of from about one to about ten millicoulombs per milliliter of solution.

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4. The method of claim 1, wherein the disinfecting solution comprises an aqueous solution of a biological oxidant.

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5. The method of claim 4, wherein the biological oxidant comprises a halogen containing compound.

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6. The method of claim 5, wherein the halogen containing compound is selected from the group consisting of chlorine dioxide, bromine oxide, bromine chloride, monochloroamine, bromic acid, hypochlorous acid, chlorates, chlorites, hypochlorites, iodine monochloride, iodine trichloride, iodine monobromide, and combinations thereof.

7. The method of claim 6, wherein the halogen containing compound is hypochlorous acid.

5 8. The method of claim 1, wherein said aerosol is applied to said surface at the rate of from about 0.1 to about 5 ft<sup>2</sup> per second.

10 9. The method of claim 8, wherein said aerosol is applied to said surface at the rate of from about 0.5 to about 2 ft<sup>2</sup> per second.

15 10. The method of claim 1, wherein said treatment is effective to at least reduce the potential infectivity of any viable microorganisms, including spores thereof, residing on said surface.

20 11. The method of claim 10, wherein said treatment is effective to at least reduce the potential infectivity of any spores of *Bacillus anthracis*.

12. The method of claim 1, wherein the aerosol remains in contact with said surface for at least about 2 minutes.